

In the Official Action dated June 27, 2002, the drawings were objected to under 37 CFR § 1.83(a); Claims 1 to 3, 6 to 11 and 19 to 22 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite; Claims 21 and 22 were objected to under 37 CFR § 1.75, as substantially duplicative of Claims 19 and 20, respectively; Claims 1 to 3, 6 to 9 and 11 were rejected under 35 U.S.C. § 103(a), as unpatentable over U.S. Patent No. 4,889,406 (Sezerman), in view of U.S. Patent No. 5,652,922 (Kohno); Claim 10 was rejected under 35 U.S.C. § 103(a), as unpatentable over the Sezerman '406 patent and the Kohno '922 patent, further in view of U.S. Patent No. 4,780,640 (Hasegawa). Reconsideration and withdrawal of the objections and rejections respectfully are requested in view of the above amendments and the following remarks.

On November 27, 2002, Applicants timely filed an Amendment fully responsive to the Official Action.

Applicants are in receipt of an Advisory Action indicating that the prior filed Amendment overcomes various outstanding objections and rejections, but raises additional formal issues and does not overcome the art rejection with respect to Claims 1 and 11.

Without conceding the propriety of the Examiner's newly presented objections in the Advisory Action, Applicants submit the present Amendment, which includes both amendments previously submitted in the Amendment filed November 27, 2002, and further amendments (Claims 1 and 11) and remarks believed to obviate or make moot all outstanding objections and rejections.

FORMAL OBJECTIONS TO THE DRAWINGS

The formal objection to the drawings respectfully is traversed. Each of prior pending independent Claims 1, 11 and 19 to 22 recites the feature of “a deformation restricting member disposed between said plurality of coupling members and said first holding member.” Applicants submit that the present application clearly illustrates in Fig. 4 and describes in the corresponding written disclosure an embodiment including a first lens holding member (third lens unit holding frame 109), a plurality of coupling members (self-tapping screws 145), and a deformation restricting member (reinforcement plate 119) disposed between the plurality of coupling members and the first holding member. The Examiner’s narrow reading of this claim language such that “there is not any element in the space between the coupling members and the first holding members” (page 2, para. 2 of the Office Action) is unsupported and in error. This embodiment as disclosed also includes a second holding member (sixth lens holding frame 118) disposed between the deformation restricting member (119) and the first holding member (109); however, Applicants submit that the structure of Figure 4, and the corresponding written description, fully supports the subject claim language.

Nevertheless, without conceding the propriety of the objection, Applicants note that independent Claims 1, 11, 19 and 20 have been amended herein, whereby the objection is deemed moot. Reconsideration and withdrawal of the objection respectfully are requested.

FORMAL REJECTION OF THE CLAIMS

The formal rejection of Claims 1, 11 and 19 to 22 respectfully is traversed, and/or deemed moot, for the same reasons.

In particular, independent Claims 1, 11, 19 and 20 have been amended to clarify the feature of the "optical axis", as suggested by the Examiner. No new matter has been added. Moreover, in view of the Examiner's comments in the Advisory Action, Applicants believe that Claims 19 and 20 are in allowable form and in condition for allowance.

The formal rejection of Claim 9/7/1 respectfully is traversed. Nevertheless, without conceding the propriety of the rejection, Claim 9 further has been amended to recite more clearly that in one aspect/embodiment "said friction preventing member is said deformation restricting member." Accordingly, Applicants submit that the rejection is rendered moot; reconsideration and withdrawal of the rejection respectfully are requested.

DOUBLE PATENTING REJECTION

The double patenting objection/rejection respectfully is traversed. Nevertheless, without conceding the propriety of the rejection, Claims 21 and 22 have been cancelled.

REJECTION S OVER THE PRIOR ART

The rejections of the claims over the prior art respectfully are traversed. The present invention relates to a novel optical-element holding mechanism. In one aspect, as now recited in independent Claim 1, the optical-element holding mechanism comprises

a first holding member that holds a first optical element, a second holding member that holds a second optical element, a plurality of coupling members that couple the first holding member and the second holding member so as to permit relative positions of the first holding member and the second holding member to be varied during a coupling operation, and a plurality of urging members, respectively disposed between each of the plurality of coupling members and the second holding member, that urge and press the second holding member against the first holding member at least during the coupling operation so as to permit alignment of respective optical axes of the first holding member and the second holding member during the coupling operation. A deformation restricting member is disposed between the plurality of coupling members and the *second* holding member and *prevents* deformation of the first holding member while relative positions of the first holding member and the second holding member are varied during the coupling operation.

Independent Claim 11 recites similar features with respect to an optical apparatus.

Applicants submit that the prior art fails to anticipate the present invention. Moreover, Applicants submit that there are differences between the subject matter sought to be patented and the prior art, such that the subject matter taken as a whole would not have been obvious at the time the invention was made to one of ordinary skill in the art.

The Sezerman '406 patent relates to tilt adjustable optical fibre connectors, and discloses an adjustable connector for optically connecting one optical fibre to another fibre or a light source. However, Applicants submit that the Sezerman '406 patent fails to disclose or suggest at least the above-described features of the present invention. In the

Advisory Action, the Examiner asserts "the deformable ring 32 located between the second base plate (16) and the coupling members (34) provided by Sezerman acts as a deformable element that *restricts* the deformation of the first base plate (18)." (Emphasis added) However, without conceding the propriety of the Examiner's characterization, nowhere is the Sezerman '406 patent understood to disclose or suggest at least the feature of a deformation restricting member that *prevents* deformation of the first holding member while relative positions of the first member and the second member are varied during a coupling operation, as disclosed and claimed in the present application. As acknowledged by the Examiner, the Sezerman '406 patent teaches the feature of a deformable angular ring 32 disposed between the first holding member and the second holding member, which inherently permits some degree of deformation by its very nature. Moreover, Applicants submit that these structures are distinguished and provide substantially different functions in the respective structures.

The Kohno '922 patent relates to a zoom lens mechanism, and was cited merely for its disclosure of "urging members," in the form of disposable washers, used in conjunction with coupling members in the form of screws, for coupling two elements together. Applicants submit that the Kohno '922 patent fails to disclose or suggest at least the above-described features of the present invention. Nor is the Kohno '922 patent understood to add anything to the Sezerman '406 patent that would remedy the above-discussed deficiencies or otherwise make obvious the claimed invention.

The Hasegawa '640 patent relates to a projection television receiver with liquid-cooled lens, and discloses a projection television receiver comprising a lens mounted adjacent to the face for focusing images projected by the tube, including a

coupling system comprising a screw, a washer and a press plate, wherein the coupling system is used to couple the two systems together. However, Applicants submit that the Hasegawa '640 patent fails to disclose or suggest at least the above-described features of the present invention. Rather, in the Hasegawa '640 patent, the pressing plate 5 is fixed to a frame 2 and a tube 1 is attached to the frame 2; the plate 5 is fixed to the frame 2 by inserting a screw 6 through a washer 10 and screwing the screw 6 into a pillar portion 21 of the frame 2. Nowhere is the Hasegawa '640 patent understood to remedy the deficiencies of the Sezerman '406 patent and the Kohno '922 patent, or otherwise make obvious the claimed invention.

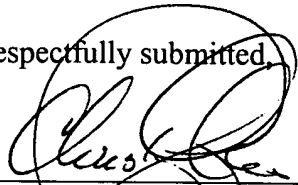
For the above reasons, Applicants submit that independent Claims 1 and 11 are allowable over the cited art.

Claims 2, 3 and 6 to 10 depend from Claim 1, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of independent Claim 1, and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Applicants believe that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action and the Advisory Action, and submit that the application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



Attorney for Applicants

Registration No. 32,078

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
CPW\gmc
DC_MAIN 127663v1



VERSION WITH MARKS TO SHOW CHANGES MADE TO CLAIMS

1. (Four Times Amended) An optical-element holding mechanism comprising:

a first holding member that holds [arranged to hold] a first optical element;

a second holding member that holds [arranged to hold] a second optical element;

a plurality of coupling members that [arranged to] couple said first holding member and said second holding member so as[, and] to permit relative positions of said first holding member and said second holding member to be varied during a coupling operation [in a vertical direction in the process of being coupled];

a plurality of urging members, respectively disposed between each of said plurality of coupling members and said second holding member, that [and arranged to] urge and press said second holding member against said first holding member at least during the [when said plurality of coupling members are in the process of] coupling operation so as to permit [said first holding member and said second holding member through] alignment of respective optical axes of the first optical element and the second optical element during the coupling operation; and

a deformation restricting member disposed between said plurality of coupling members and said second [first] holding member that prevents [and arranged to restrict] deformation of said first holding member while relative positions of said first

holding member and said second holding member are [in the process of being] varied during the coupling operation[, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member.]

2. (Twice Amended) An optical-element holding mechanism according to claim 1, wherein each coupling member is a screw that couples [arranged to couple] said first holding member and said second holding member by press contact.

7. (Twice Amended) An optical-element holding mechanism according to claim 1, further comprising a friction preventing member, disposed between each coupling member and said second holding member, that prevents [and arranged to prevent] generation of a frictional force between said coupling member and said second holding member during the [when said] coupling operation [member is in the process of coupling said first holding member and said second holding members].

9. (Three Times Amended) An optical-element holding mechanism according to claim 7, wherein said friction preventing member is [serves also as] said deformation restricting member.

11. (Four Times Amended) An optical apparatus comprising:
an apparatus body; and
an optical-element holding mechanism including:

a first holding member that holds [arranged to hold] a first optical element;

a second holding member that holds [arranged to hold] a second optical element;

a plurality of coupling members that [arranged to] couple said first holding member and said second holding member so as[, and] to permit relative positions of said first holding member and said second holding member to be varied during a coupling operation [in a vertical direction in the process of being coupled];

a plurality of urging members, respectively disposed between each of said plurality of coupling members and said second holding member, that [and arranged to] urge and press said second holding member against said first holding member at least during the [when said plurality of coupling members are in the process of] coupling operation so as to permit [said first holding member and said second holding member through] alignment of respective optical axes of the first optical element and the second optical element during the coupling operation; and

a deformation restricting member disposed between said plurality of coupling members and said second [first] holding member that prevents [and arranged to restrict] deformation of said first holding member while relative positions of said first holding member and said second holding member are [in the process of being] varied during the coupling operation[, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member].

19. (Twice Amended) An optical-element holding mechanism comprising:
- a first holding member that holds [arranged to hold] a first optical element;
 - a second holding member that holds [arranged to hold] a second optical element;
 - a plurality of coupling members that [arranged to] couple said first holding member and said second holding member so as[, and] to permit relative positions of said first holding member and said second holding member to be varied during a coupling operation [in the process of being coupled];
 - a plurality of urging members, respectively disposed between each of said plurality of coupling members and said second holding member, that [and arranged to] urge and press said second holding member against said first holding member at least during the [when said plurality of coupling members are in the process of] coupling operation so as to permit [said first holding member and said second holding member through] alignment of respective optical axes of the first optical element and the second optical element during the coupling operation; and
 - a deformation restricting member disposed between said plurality of coupling members and said second [first] holding member that restricts [and arranged to restrict] deformation of said first holding member while relative positions of said first holding member and said second holding member are [in the process of being] varied during the coupling operation[, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member];

wherein said deformation restricting member includes a plurality of first through hole portions for receiving [one of] said plurality of coupling members;

wherein said first holding member includes an extended portion extending [extended] in the direction of the optical axis of said first optical element, said extended portion including a plurality of abutting faces and a plurality of receiving portions for receiving the plurality of coupling members; and

wherein said second holding member includes a plurality of flanges extending in a direction perpendicular to the optical axis, each flange abutting against one of said plurality of abutting faces of said first holding member, each flange including a second through hole portion for receiving a respective one of said plurality of coupling members.

20. (Twice Amended) An optical apparatus comprising:

an apparatus body; and

an optical-element holding mechanism including:

a first holding member that holds [arranged to hold] a first optical element;

a second holding member that holds [arranged to hold] a second optical element;

a plurality of coupling members that [arranged to] couple said first holding member and said second holding member so as[, and] to permit relative positions

of said first holding member and said second holding member to be varied during a coupling operation [in the process of being coupled];

a plurality of urging members, respectively disposed between each of said plurality of coupling members and said second holding member, that [and arranged to] urge and press said second holding member against said first holding member at least during the [when said plurality of coupling members are in the process of] coupling operation so as to permit [said first holding member and said second holding member through] alignment of respective optical axes of the first optical element and the second optical element during the coupling operation; and

a deformation restricting member disposed between said plurality of coupling members and said second [first] holding member that restricts [and arranged to restrict] deformation of said first holding member while relative positions of said first holding member and said second holding member are [in the process of being] varied during the coupling operation[, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member];

wherein said deformation restricting member includes a plurality of first through hole portions for receiving [one of] said plurality of coupling members;

wherein said first holding member includes an extended portion extending [extended] in the direction of the optical axis of said first optical element, said extended portion including a plurality of abutting faces and a plurality of receiving portions for receiving the plurality of coupling members; and

wherein said second holding member includes a plurality of flanges extending in a direction perpendicular to the optical axis, each flange abutting against one of said plurality of abutting faces of said first holding member, each flange including a second through hole portion for receiving a respective one of said plurality of coupling members.

21. Cancelled.

22. Cancelled.

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